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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Miller et al.

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For: STORM PROOF ROOFING MATERIAL

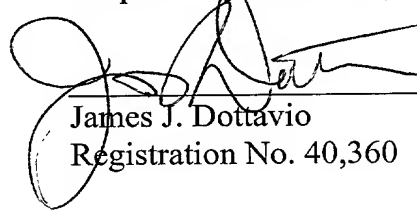
PRELIMINARY AMENDMENT

Box NON-FEE AMENDMENTS
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Please amend the above-identified application as indicated on the following pages. If any additional fee is due in connection with the filing of this paper, please charge all necessary fees to Deposit Account No. 50-0568.

Respectfully submitted,



James J. Dottavio
Registration No. 40,360

Date: 1-11-02

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IN THE SPECIFICATION

Add the following new paragraph on page 1, line 4:

CROSS REFERENCE TO RELATED APPLICATIONS

The present application is a division of co-pending U.S. patent application Ser. No. 09/223,670, entitled STORM PROOF ROOFING MATERIAL, filed December 30, 1998.

Replace the paragraph beginning on page 10, line 13 with the following new paragraph:

Many other methods can be used for applying the protective coating to the upper surface of the asphalt coating. One method is paying out a previously extruded film of the protective coating material onto the asphalt-coated sheet. Another method is adding protective coating material in particulate form to the upper surface of the asphalt-coated sheet, and then heating the protective coating material to melt it and cause it to flow into a substantially continuous, or unitary layer. A further method is pre-mixing the protective coating material in particulate form into the asphalt coating, so that the protective coating material melts and phase separates from the asphalt coating when the asphalt coating is heated, to provide a substantially continuous, or unitary layer on the asphalt coating. Other suitable methods include spraying and roll coating. "Unitary" is defined as substantially uninterrupted, or continuous. Preferably, the protective coating is fluid enough when the granules are applied that it flows partially around the granules to adhere them to the coating. In a preferred embodiment, the protective coating is applied immediately after the asphalt coating is applied and immediately before the granules are applied.

Replace the paragraph beginning on page 12, line 8 with the following new paragraph:

As shown in the drawings, the granules 72 have been pressed down into the protective coating 70. Usually, at least a portion of the granules penetrate the asphalt coating 74. "Penetrate" means that a granule extends past an asphalt coating line 95 which is an average upper surface 80 of the asphalt coating 74. In Fig. 4, the granules 96, 98, 84, 86 and 100 penetrate the asphalt coating, and in Fig. 5, the granules 90, 102 and 104 penetrate the asphalt coating. In some embodiments of the invention, a substantially continuous, or unitary layer of the protective coating is maintained between the asphalt coating and the granules that penetrate the asphalt coating. In Fig. 4, layers 110, 112 and 114 of the protective coating are maintained between the granules 96, 98 and 86 and the asphalt coating, and in Fig. 5, a layer 116 is maintained between the granule 104 and the asphalt coating. It was believed beforehand that when a granule was pressed through the layer of protective coating into the asphalt coating, the protective coating layer might not be maintained between the granule and the asphalt coating. Preferably, a substantially continuous, or unitary layer of the protective coating is maintained between the asphalt coating and at least about 30% of the granules that penetrate the asphalt coating. The continuous layer of protective coating around the granules increases the adhesion of the granules to the roofing material.

IN THE CLAIMS

Cancel Claims 3, 4, 7-11, 15, 16, 21-23, 28-35, and 40 without prejudice or disclaimer.

Substitute the following amended claims for the pending claims of the same number.

1. (Amended) An asphalt-based roofing material comprising:
a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof, and a lower region that is positioned below the substrate when the roofing material is installed on the roof,
a protective coating adhered to the upper surface of the asphalt coating,
a surface layer of granules adhered to the protective coating, and
a web bonded to the lower region of the asphalt coating, the web comprising materials having an ultimate tensile elongation of greater than about six percent.

6. (Amended) An asphalt-based roofing material including a portion that is normally exposed when the roofing material is installed on a roof, the roofing material comprising:

a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on the roof,

a protective coating adhered to the upper surface of the asphalt coating, the protective coating comprising a unitary layer covering at least about 80% of the upper surface of the asphalt coating in the exposed portion of the roofing material, and

a surface layer of granules adhered to the protective coating.

14. (Amended) An asphalt-based roofing material comprising:

a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof,

a protective unitary coating adhered to the upper surface of the asphalt coating, and

a surface layer of granules adhered to the protective coating, wherein at least a portion of the granules penetrate the asphalt coating, and wherein the protective coating provides a seal to prevent outside moisture from flowing around the granules to the asphalt coating.

17. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof, and a lower region that is positioned below the substrate when the roofing material is installed on the roof,

applying a protective coating to the upper surface of the asphalt coating,

applying a surface layer of granules to the protective coating, and

applying a web to the lower region of the asphalt coating, the web comprising materials having an ultimate tensile elongation of greater than about six percent.

19. (Amended) The method of claim 18 in which the protective coating is applied to cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

24. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface above the substrate, and a lower region below the substrate, applying a unitary protective coating to the upper surface of the asphalt coating, and applying a surface layer of granules to the protective coating.

26. (Amended) The method of claim 25 in which the protective coating is applied to cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

36. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof, providing a film of a protective coating material, applying the film to the upper surface of the asphalt coating to form a unitary protective layer, and applying a surface layer of granules to the film.

38. (Amended) The method of claim 37 in which the film is applied to cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

41. (Amended) A method of manufacturing an asphalt-based roofing material, the roofing material including a portion that is normally exposed when the roofing material is installed on a roof, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on the roof,

applying a protective coating to the upper surface of the asphalt coating to form a unitary layer covering at least about 80% of the upper surface of the asphalt coating in the exposed portion of the roofing material, and

applying a surface layer of granules to the protective coating.

42. (Amended) The method of claim 41 in which the protective coating is applied to cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

Add the following new claims.

44. The roofing material of claim 1, the web improving the impact resistance of the roofing material such that, when tested under impact resistance test UL 2218, the roofing material exhibits an impact resistance improvement of at least two UL 2218 classes compared with the same roofing material without the web.

45. The roofing material of claim 1, wherein the web is fused to the lower region of the asphalt coating.

46. The roofing material of claim 45, the web improving the impact resistance of the roofing material such that, when tested under impact resistance test UL 2218, the roofing material exhibits an impact resistance improvement of at least two UL 2218 classes compared with the same roofing material without the web.

47. The roofing material of claim 5, wherein the protective layer is applied to the upper surface as a substantially unitary layer.

48. The roofing material of claim 6, wherein the protective coating is extruded onto the upper surface of the asphalt coating.

49. The roofing material of claim 6, wherein the protective coating comprises one or more solidified film strips applied onto the upper surface of the asphalt coating, the strips being melted to form the unitary layer.

50. The roofing material of claim 6, wherein said protective coating comprises a particulate material applied onto the upper surface of the asphalt coating, the particulate material being melted to form the unitary layer.

REMARKS

Status of Claims

Cancel Claims 3, 4, 7-11, 15, 16, 21-23, 28-35, and 40 without prejudice or disclaimer. Claims 1, 6, 14, 17, 19, 24, 26, 36, 38, 41, and 42 have been amended. Claims 44-50 have been added. Claims 1-2, 5, 6, 12-14, 17-20, 24-27, 36-39, and 41-50 are pending.

Specification

Applicants have added a new paragraph on page 1, line 4 to properly identify the present Application as a Divisional Application co-pending U.S. Patent Application Ser. No. 09/223,670.

Applicants have also amended the paragraphs beginning on page 10, line 13, and page 12, line 8. Support for these amendments appears in the Specification in the paragraphs beginning at on page 10, line 13, and page 12, line 8, respectively.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Replace the paragraph beginning on page 10, line 13 with the following new paragraph:

Many other methods can be used for applying the protective coating to the upper surface of the asphalt coating. One method is paying out a previously extruded film of the protective coating material onto the asphalt-coated sheet. Another method is adding protective coating material in particulate form to the upper surface of the asphalt-coated sheet, and then heating the protective coating material to melt it and cause it to flow into a substantially continuous, or unitary layer. A further method is pre-mixing the protective coating material in particulate form into the asphalt coating, so that the protective coating material melts and phase separates from the asphalt coating when the asphalt coating is heated, to provide a substantially continuous, or unitary layer on the asphalt coating. Other suitable methods include spraying and roll coating. "Unitary" is defined as substantially uninterrupted, or continuous. Preferably, the protective coating is fluid enough when the granules are applied that it flows partially around the granules to adhere them to the coating. In a preferred embodiment, the protective coating is applied immediately after the asphalt coating is applied and immediately before the granules are applied.

Replace the paragraph beginning on page 12, line 8 with the following new paragraph:

As shown in the drawings, the granules 72 have been pressed down into the protective coating 70. Usually, at least a portion of the granules penetrate the asphalt coating 74. "Penetrate" means that a granule extends past an asphalt coating line 95 which is an average upper surface 80 of the asphalt coating 74. In Fig. 4, the granules 96, 98, 84, 86 and 100 penetrate the asphalt coating, and

in Fig. 5, the granules 90, 102 and 104 penetrate the asphalt coating. In some embodiments of the invention, a substantially continuous, or unitary layer of the protective coating is maintained between the asphalt coating and the granules that penetrate the asphalt coating. In Fig. 4, layers 110, 112 and 114 of the protective coating are maintained between the granules 96, 98 and 86 and the asphalt coating, and in Fig. 5, a layer 116 is maintained between the granule 104 and the asphalt coating. It was believed beforehand that when a granule was pressed through the layer of protective coating into the asphalt coating, the protective coating layer might not be maintained between the granule and the asphalt coating. Preferably, a substantially continuous, or unitary layer of the protective coating is maintained between the asphalt coating and at least about 30% of the granules that penetrate the asphalt coating. The continuous layer of protective coating around the granules increases the adhesion of the granules to the roofing material.

IN THE CLAIMS

Cancel Claims 3, 4, 7-11, 15, 16, 21-23, 28-35, and 40 without prejudice or disclaimer.

Substitute the following amended claims for the pending claims of the same number.

1. (Amended) An asphalt-based roofing material comprising:
a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof, and a lower region that is positioned below the substrate when the roofing material is installed on the roof,

a protective coating adhered to the upper surface of the asphalt coating,
 a surface layer of granules adhered to the protective coating, and
 a web bonded to the lower region of the asphalt coating, the web
comprising materials having an ultimate tensile elongation of greater than about
six percent.

6. (Amended) An asphalt-based roofing material including a portion that is normally exposed when the roofing material is installed on a roof, the roofing material comprising:

a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on the roof,

a protective coating adhered to the upper surface of the asphalt coating, the protective coating comprising a unitary layer covering at least about 80% of the upper surface of the asphalt coating in the exposed portion of the roofing material, and

a surface layer of granules adhered to the protective coating.

14. (Amended) An asphalt-based roofing material comprising:

a substrate coated with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof,

a protective unitary coating adhered to the upper surface of the asphalt coating, and

a surface layer of granules adhered to the protective coating, wherein at least a portion of the granules penetrate the asphalt coating, and wherein the protective coating provides a seal to prevent outside moisture from flowing around the granules to the asphalt coating.

17. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof, and a lower region that is positioned below the substrate when the roofing material is installed on the roof,

applying a protective coating to the upper surface of the asphalt coating,

applying a surface layer of granules to the protective coating, and

applying a web to the lower region of the asphalt coating, the web comprising materials having an ultimate tensile elongation of greater than about six percent.

19. (Amended) The method of claim 18 in which the protective coating is applied to [substantially completely] cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

24. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

[applying a web to a substrate,]

coating a [the] substrate [and the web] with an asphalt coating, the asphalt coating including an upper surface [that is positioned] above the substrate [when the roofing material is installed on a roof], and a lower region [that is positioned] below the substrate [when the roofing material is installed on the roof, wherein the web is in contact with the lower region of the asphalt coating],

applying a unitary protective coating to the upper surface of the asphalt coating, and

applying a surface layer of granules to the protective coating.

26. (Amended) The method of claim 25 in which the protective coating is applied to [substantially completely] cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

36. (Amended) A method of manufacturing an asphalt-based roofing material, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on a roof,

providing a film of a protective coating material,

applying the film to the upper surface of the asphalt coating to form a unitary protective layer, and

applying a surface layer of granules to the film.

38. (Amended) The method of claim 37 in which the film is applied to [substantially completely] cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.

41. (Amended) A method of manufacturing an asphalt-based roofing material, the roofing material including a portion that is normally exposed when the roofing material is installed on a roof, comprising the steps of:

coating a substrate with an asphalt coating, the asphalt coating including an upper surface that is positioned above the substrate when the roofing material is installed on the roof,

applying a protective coating to the upper surface of the asphalt coating to [cover] form a unitary layer covering at least about 80% of the upper surface of the asphalt coating in the exposed portion of the roofing material, and
applying a surface layer of granules to the protective coating.

42. (Amended) The method of claim 41 in which the protective coating is applied to [substantially completely] cover substantially all of the upper surface of the asphalt coating in the exposed portion of the roofing material.